강 의 계 획 서(S y l l a b u s)

(2021년 1학기)

Course No.	M2794.007900	Sub. No.	001	Course Name	Advanced Thermodynamics	Unit	3
담당교수 (Lecturer)	성명 : 송 한 호 (Song, Han Ho)			홈페이지 : etl.snu.ac.kr			
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	면담시간 / 장소 : 화(Tue) 9:30-10:30, 목(Thu) 14:00-15:00 / 301-1409 or zoom ID@8228801651						
1. 수업목표 (Goal)	This course will extend the knowledge on classical thermodynamics to the graduate level and also introduce the fundamentals of statistical thermodynamics. We will examine macroscopic thermodynamic phenomena, analyze them in terms of both macroscopic and microscopic quantities and understand the relationship between them. Other tasks include the following: the reformulation of the basic principles of thermodynamics; the review of classical kinetic theory; working out the solutions of the Schrodinger equation for the modes of translation, rotation, vibration and others; application of these results to various cases; developing calculation methods for thermodynamic properties of gases and solids. This course will also provide a brief introduction to the principles and examples of irreversible processes.						
2. 참고서 (Reference)	Ashley H. Carter, Classical and Statistical Thermodynamics, Pearson International Edition, Prentice-Hall Claus Borgnakke and Richard E. Sonntag, Fundamentals of Thermodynamics (7th ed., 8th ed., or 9th ed., SI version), Wiley, 2008, 2014, or 2017						

3. 평가방법 (Evaluation)	Attendance	Homework	Midterm	Final	Project	Total
	10 %	30 %	30 %	30 %	0 %	100 %

4. 강의계획 (Schedule)	wk	Contents
	1	Introduction, The Nature of Thermodynamics
	2	Equations of State
	3	The First Law of Thermodynamics
	4	Applications of the First Law
	5	Consequences of the First Law
	6	The Second Law of Thermodynamics
	7	Applications of the Second Law
	8	Thermodynamic Potentials
	9	The Chemical Potential and Open Systems
	10	The Third Law of Thermodynamics
	11	The Kinetic Theory of Gases
	12	Statistical Thermodynamics
	13	Classical and Quantum Statistics
	14	The Classical Statistical Treatment of an Ideal Gas

	15	The Heat Capacity of a Diatomic gas and a Solid
5. 수강생 참고사항 (Notes)	선수필수과목 : 학부 열역학 Prerequisite : Undergraduate Thermodynamics	
6. 부정행위자에 대한 처리 (For cheating)	최하 성적 부여 The lowest grade will be given.	